

Two species of the genus *Lamprochernes* Tömösváry (Pseudoscorpiones: Chernetidae) from Iran

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Abstract — *Lamprochernes muscivorus* Redikorzev 1949 is recorded for the first time from Iran accompanied by a redescription, illustrations, mensuration and a new habitat record. In addition, new provincial record and illustrations of *Lamprochernes nodosus* (Schränk 1803) are provided.

Key words — *Lamprochernes muscivorus*, *Lamprochernes nodosus*, Arachnida, new record, fauna, morphometric range, geographical distribution

Introduction

The chernetid fauna of Iran are poorly known, and only one species of the genus *Lamprochernes* Tömösváry 1882, *L. nodosus* (Schränk 1803), has been previously recorded (Harvey 2013). The species was found in Guilan Province in northern Iran (Mahnert 1974), and recently we collected this species attached to hind leg of a fly in the Nayband Protected Area, Boushehr Province in southern Iran. Dimensions and illustrations of this species are provided in this paper.

Lamprochernes muscivorus Redikorzev 1949 was originally described from Turkmenistan and Uzbekistan (Redikorzev 1949), and subsequently reported from the United Arab Emirates by Mahnert (2009). Also, *Lamprochernes indicus* Sivaraman 1980 which was reported from India (Sivaraman 1980) was synonymized with *L. muscivorus* by Mahnert (2009). There is no previous record of this species from Iran. As this species has not been previously fully described or illustrated, we provide new figures and a full redescription based on the females collected from Iran.

Materials and methods

The specimens examined for this study are lodged in the Collection of Acarology Laboratory, Islamic Azad University of Arak (IAUA), Iran. Terminology and mensuration mostly follow Chamberlin (1931), Harvey (1992), Judson (2007) and Harvey et al. (2012). The specimens were preserved in 70% ethanol, cleared by immersion in 60% lactic acid and dissected by using black enameled pins. A few specimens were permanently mounted in Swan's fluid and the other specimens studied as temporary slides in glycerin. The specimens on the slides were measured with a calibrated ocular micrometer and illustrated with a drawing tube attached to an Olympus BH-2 compound

microscope.

The following trichobothrial abbreviations were employed: *eb* = external basal; *esb* = external sub-basal; *ib* = internal basal; *isb* = internal sub-basal; *ist* = internal sub-terminal; *est* = external sub-terminal; *it* = internal terminal; *et* = external terminal; *t* = terminal; *b* = basal; *sb* = sub-basal; *st* = sub-terminal. In addition, the following abbreviations are used in the text: L = length; W = width; D = depth.

Family Chernetidae Menge 1855

Genus *Lamprochernes* Tömösváry 1882

Lamprochernes muscivorus Redikorzev 1949

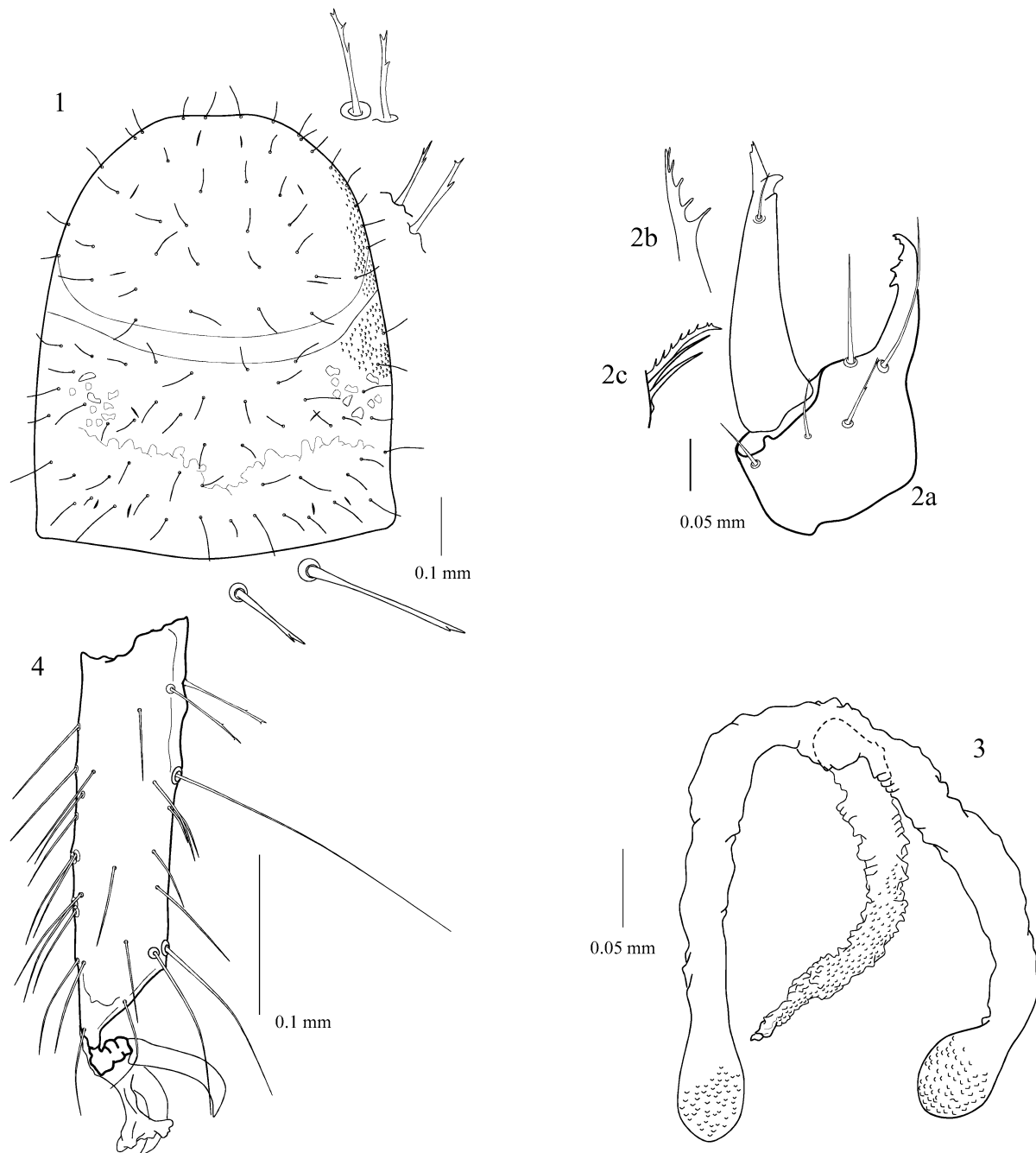
Figs. 1–8

Lamprochernes muscivorus Redikorzev 1949: 650–651, figs. 11–12.

Material Examined. IRAN: Kerman Province: 4♀, Karim Abad [28°40'13"N, 57°44'13"E, altitude 800 m], Jiroft, cattle dung, 26 June 2011, leg. M. Nassirkhani; 3♀, Sirch [30°11'50"N, 57°34'12"E, altitude 1550 m], Shahdad, cattle dung, 2 July 2015, leg. M. Nassirkhani. Hormozgan Province: 1♂, 2 ♀, Bandar-e-Abbass [27°15'N, 56°17'E, altitude 30 m], cattle rearing center, dung, 15 April 2015, leg. M. Nassirkhani (IAUA).

Description. *Female.* Body length: 2.47–2.97 mm.

Carapace: anterior half reddish brown, distinctly lighter in color than pedipalps, posterior half yellowish brown, posterior margin pale; finely granulate; distinctly longer than width, 1.29–1.34 times longer than width; anterior transverse furrow present, situated medially, slightly curved basally; eyes/eye spots absent; setae on anterior half mostly shorter than setae on posterior half; all setae finely dentate; anterior margin with 5 and posterior margin with 10 setae; with 5 pairs of slit-like lyrifissures (Fig. 1).

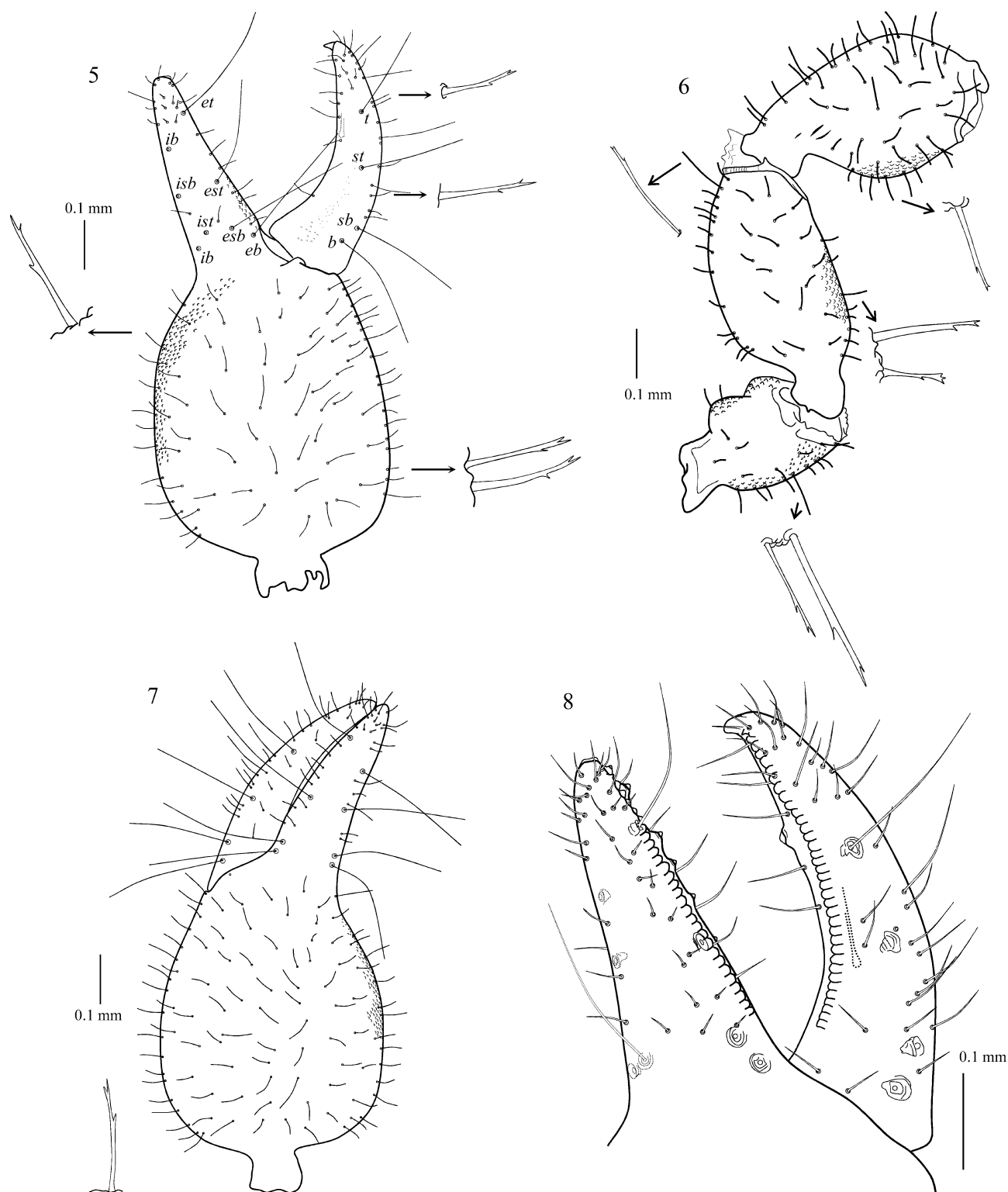


Figs. 1–4. *Lamprochernes muscivorus* Redikorzev 1949, female. 1, carapace, dorsal aspect; 2a, chelicera (male), dorsal aspect; 2b, galea; 2c, rallum; 3, spermathecae; 4, tarsus IV.

Tergites: yellowish brown, lighter in color than carapace; sclerotized and finely granulate; with median suture line, I–III and XI not divided completely; half-tergite I with one discal seta situated laterally, II–III with one lateral and one central discal setae, IV–V with two lateral and two central discal setae, VI–IX with three lateral and two central discal setae; X with four lateral and median slightly long tactile setae; XI with four lateral and median long tactile setae; setae long and finely denticulate; circum anal setae dentate; chaetotaxy (total number of tergites): 18–21: 25–27: 20–21: 26–28: 30–32: 29–31: 28–31: 25–29: 26–27: 23–24: 11–13:

2.

Sternites: light brown, lighter in color than tergites; lightly sclerotized and less granulate than tergites; IV–X with median suture line, XI divided incompletely; II and III deformed and made anterior and posterior operculum; with T-shaped spermathecae, lateral arms slightly longer and distinctly stouter than the median tube (Fig. 3); X with 6 slightly long tactile setae situated laterally, medially and centrally; XI with four lateral and median long tactile setae; circum-anal setae short with fine lateral and apical denticulations; suprastigmal setae with fine denticulations,



Figs. 5–8. *Lamprochernes muscivorus* Redikorzev 1949, female. 5, right chela, lateral aspect; 6, basal segments of pedipalp, dorsal aspect; 7, left chela, dorsal aspect; 8, right chelal fingers (showing teeth, accessory teeth, trichobothrial pattern, position of nodus ramosus, and type of setae on movable chelical finger). Granulation pattern of the pedipalpal basal segments is not shown completely.

curved and short; chaetotaxy: 20–21: (3)10–11(3): (4)8–9(4): 27–28: 33–34: 33–37: 34–36: 32–34: 26–27: 11–12: 2.

Pleural membrane: longitudinally striate.

Chelicera: light brown; hand with 5 setae, 2–3 basal ones

short, *sb* with fine denticulations (Fig. 2a); serrula exterior and serrula interior present; serrula exterior with 17–19 blades; rallum with three blades, distal blade longest and denticulate (Fig. 2c); galea long with 6 rami (2 basally, 1

Table 1. Dimensions of pedipalp of *Lamprochernes muscivorus* Redikorzev 1949 (in mm).

	Type	From India	From UAE	From Iran
Femur L.	0.48	0.42	0.36–0.51	0.50–0.55
Femur W.	0.24	0.23	0.18–0.27	0.24–0.26
Hand (with pedicel) L.	0.56	0.50	0.41–0.62	0.55–0.61
Hand (with pedicel) W.	0.38	0.36	0.29–0.45	0.38–0.45
Movable finger L.	0.37	0.38	0.37–0.45	0.46–0.47

medially, 1 sub-apically, and 2 apically) (Fig. 2b) (galea of male with very short terminal rami (Fig. 2a)); fixed finger with 5 teeth; movable finger with a pointed sub-apical tooth.

Pedipalps: dark brown; sclerotized; trochanter, femur and patella granulate; chela finely granulate mediodistally; setae approximately long and finely dentate; movable chelal finger with denticulate setae (the specimens from Bandar-e-Abbass with simple setae (Fig. 8)); coxa with one lyrifissure, manducatory lobe with 3 mariginal and 1 discal simple setae; trochanter swollen, with 2 rounded dorsal humps, L/W 1.57–1.71; femur L/W 2.00–2.11; patella with 3 lyrifissures situated basally (Fig. 6), L/W 1.71–2.89; chela (with pedicel) L/W 2.22–2.42; chela (without pedicel) L/W 2.09–2.24; hand (with pedicel) L/W 1.35–1.45; movable finger shorter than hand with pedicel; hand (with pedicel) 1.17–1.24 times longer than movable finger; movable finger curved basally (fingers distinctly gaping); fixed finger with 8 and movable finger with 4 trichobothria (Figs. 5, 7–8); fixed finger with trichobothrium *it* closer to *et* than to *est*, *isb* situated at same level as *est*; movable finger with trichobothrium *t* situated in distal half of the finger, and *st* situated in the midway between *sb* than to *t*; fixed finger with 25–29 (♂ with 30) and movable finger with 30–31 (♂ with 37) cusped teeth; movable finger with one internal and 3–4 external accessory tooth, and fixed finger with 4–5 (♂ with 5) internal and 2–3 (♂ with 3) external accessory teeth (Fig. 8); venom apparatus present only in movable finger, nodus ramosus situated between *sb* and *st*; fixed finger with very small venedens.

Legs: brown, lighter in color than carapace; granulate; sub-terminal setae curved and simple; arolia simple and shorter than claws; claws smooth and symmetrical; coxal setae arranged: 11–18: 15–18: 20–21: 31–41; setae long, and finely denticulate; tibia I L/D 3.50–3.71; tarsus I L/D 3.80–4.40; patella IV with a slightly long tactile seta situated distally, 2.70–2.73; tibia IV with a tactile seta situated distally, L/D 3.80–4.11; tarsus elongate, with a tactile seta situated in basal half of the segment (TS=0.38) (Fig. 4), L/D 4.00–4.33.

Dimensions (in mm). **Carapace:** 0.70–0.78/0.54–0.58. **Pedipalp:** trochanter 0.33–0.36/0.21; femur 0.50–0.55/0.24–0.26; patella 0.48–0.55/0.19–0.28; chela (with pedicel) 0.92–1.00/0.38–0.45; chela (without pedicel) 0.85–0.94; hand (with pedicel) L. 0.55–0.61; movable finger L. 0.46–0.47. **Leg I:** femur 0.17–0.18/0.11–0.13; patella 0.26–0.28/0.10–0.11; tibia 0.26–0.28/0.07–0.08; tarsus 0.19–0.24/0.05–0.06. **Leg IV:** femur 0.21–0.23/0.13–0.14; patella 0.37–0.41/0.14–0.15; femur + patella 0.51–0.56; tibia

0.37–0.41/0.09–0.10; tarsus 0.26–0.29/0.06–0.07.

Remarks. The newly collected specimens from Iran are very similar to published descriptions of *Lamprochernes muscivorus* Redikorzev 1949 from Central Asia, the Middle East and India (Redikorzev 1949; Sivaraman 1980; Mahnert 2009). There are a few morphometric differences between the specimens which were previously described and the newly collected materials from Iran (Table 1), e.g. the movable chelal finger length is 0.37 mm for the type (Redikorzev 1949), 0.38 mm for the specimens from India (Sivaraman 1980), 0.37–0.45 mm for the specimens from UAE (Mahnert 2009), and 0.46–0.47 mm for the specimens from Iran. Also, the fixed chelal finger of the specimens from Iran has 4–5 internal and 2–3 external accessory teeth, whereas there are 2 and 2–5 teeth on the specimens collected from India and from UAE (Sivaraman 1980; Mahnert 2009).

Lamprochernes muscivorus occurs in different types of habitats, e.g. collected from soil litter in India (Sivaraman 1980), from leaf litter, and also by light trap in UAE (Mahnert 2009), and phoretically from Turkmenistan (Redikorzev 1949). The material examined here was collected from cattle dung which represents a new habitat for the species.

Lamprochernes nodosus (Schrank 1803)

Figs. 9–16

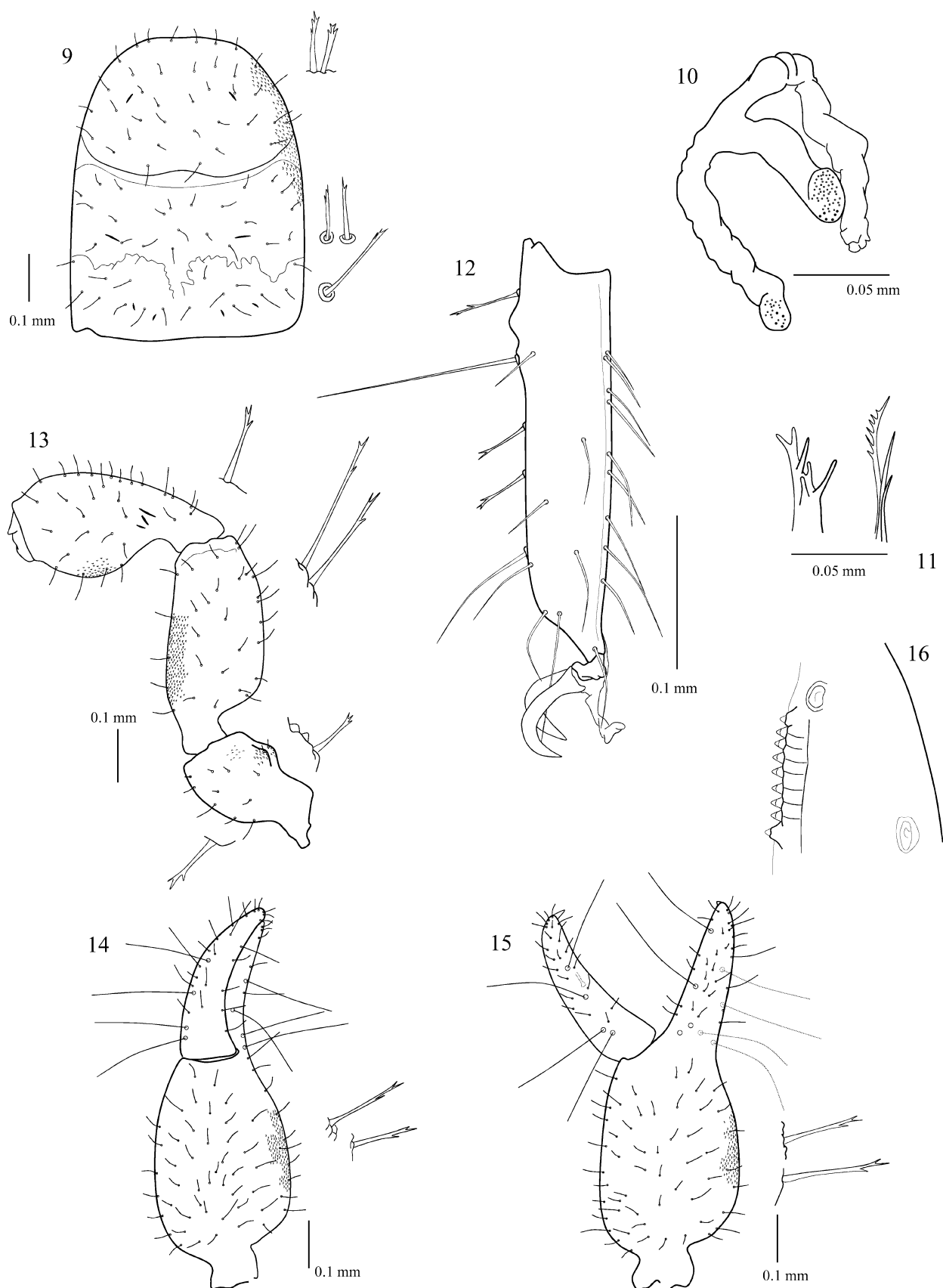
Chelifera nodosus Schrank 1803: 246.

Lamprochernes nodosus (Schrank): Beier 1932: 83–84, fig. 101.

Material Examined. IRAN: Boushehr Province: 1 ♀, Nayband Protected Area [27°22'N, 52°38'E, altitude 17 m], shore line, light trap, attached to the hind leg of a fly, 14 May 2015, leg. M. Nassirkhani (IAUA).

Dimensions (in mm). **Carapace:** 0.62/0.48. **Pedipalp:** trochanter 0.29/0.17; femur 0.45/0.19; patella 0.45/0.22; chela (with pedicel) 0.78/0.27; chela (without pedicel) 0.70; hand (with pedicel) L. 0.46; movable finger L. 0.34. **Leg I:** femur 0.17/0.10; patella 0.22/0.095; tibia 0.21/0.07; tarsus 0.20/0.05. **Leg IV:** femur 0.16/0.11; patella 0.32/0.13; Femur + patella 0.39; tibia 0.31/0.08; tarsus 0.28/0.06 (TS=0.28).

Remarks. The phoretic dispersal behavior has been indicated for several species of the genus *Lamprochernes*, e.g. *L. muscivorus* (see Mahnert 2009), *L. chyzeri* (Tömösváry 1882) (e.g. Christophoryová et al. 2011) and *L. savignyi*



Figs. 9–16. *Lamprochernes nodosus* (Schrank 1803), female. 9, carapace, dorsal aspect; 10, spermathecae; 11, galea and rallum; 12, tarsus IV; 13, basal segments of pedipalp, dorsal aspect; 14, right chela, dorsal aspect; 15, left chela, lateral aspect; 16, two of the internal accessory teeth in fixed chelal finger between trichobothria *et* and *it*. Granulation pattern of the pedipalp is not shown completely.

(Simon 1881) (e.g. Beier 1948; Harvey 1987).

Lamprochernes nosodus (Schränk 1803) can be also carried by small arthropods such as *Phalangium opilio*, *Chloria demandata*, *Ctenophora pectinicornis*, *Musca domestica*, *Musca Meteorica*, and *Tachina larvarum* (Beier 1948). In the present study, a female which was attached to the hind leg of a fly belonging to the family Muscidae (Diptera) was obtained in a light trap.

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